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THE CLINICAL USEFULNESS OF THE PHASE ANALYSIS OF Tc-99m BLOOD-POOL IMAGING IN PATIENTS WITH OLD MYOCARDIAL INFARCTION COMPLICATED WITH BUNDLE BRANCH BLOCK.

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The purpose of the present study was to evaluate the clinical usefulness of phase analysis of Tc-99m gated blood-pool imaging in patients with old myocardial infarction (OMI) complicated with bundle branch block (BBB). Blood-pool imaging was performed on 28 OMI patients with BBB(18) or without BBB (10), 18 BBB patients without OMI, and 12 normal controls. The phase analysis was carried out on all 58 subjects. The mean phase angle of both ventricles was almost similar in normal controls. It was significantly delayed in right and left ventricle (RV and LV) in patients with RBBB and LBBB, respectively. All patients with OMI had a locally delayed region in LV. Standard deviation (SD) of the LV phase angles showed a significant correlation with LV ejection fraction (EF) (r=-0.77). Patients with OMI showed a lower LVEF and a larger SD than normal controls. Patients with LBBB showed a lower LVEF and a larger SD, irrespective of the presence or absence of OMI. SD of LV regional phase angles was considered to suggest asynchronous contraction of LV. It was concluded that the phase analysis of blood-pool imaging was useful in diagnosing OMI in patients with BBB.

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CARDIAC FUNCTION DURING EXERCISE IN THE PATIENTS WITH INTERNAL MAMMARY ARTERY (IMA) BYPASS GRAFT TO LEFT ANTERIOR DESCENDING BRANCH EVALUATED BY RI ANGIOGRAPHY.

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The effectiveness of myocardial perfusion during exercise with IMA bypass revasculalization has been questioned. By means of exercise RI angiography, we examined cardiac function of 8 patients (G-1) who had patent IMA bypass graft to LAD without myocardial infarction of anterior wall and of 10 patients (G-2) who had normal coronary arteriogram. Two groups had no statistically significant differences in age and sex. G-1 had statistically significant increases in global left ventricular ejection fraction during exercise ($0.61\pm0.07 \rightarrow 0.66\pm0.09$ ($p<0.05$)) at 2.1 months after surgery. During exercise, G-1 also had significant increases in regional ejection fraction at LAD region ( $0.56\pm0.12 \rightarrow 0.67\pm0.15$ ($p<0.05$)) and new wall mortion abnormalities by exercise were not recognized at postoperative state. The postoperative cardiac function of G-1 were almost equal with that of G-2. we conculuded that IMA is one of satisfactory grafts.

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ASSESMENT OF AORTO—CORONARY BYPASS GRAFTING (ACBG) AND MYOCARDIAL VIABILITY BY EXERCISE TL-201 SINGLE PHOTON EMISSION COMPUTED TOMOGRAPHY (SPECT) AND GATED RADIONUCLIDE IMAGING.

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Myocardial viability was assessed by Tl-201 SPECT at pre and post ACBG. Simustaneously, regional left ventricular wall motion was assessed by ejection fraction (EF) and % radial shortening method(% RS). Subjects were classified three groups acording to redistribution pattern by circumferential profile method. (Group I: Complete redistribution, Group II: Incomplete redistribution, Group III: No redistribution). Regional left ventricular wall motion by % RS of Group II only significantly improved at post ACBG. Early diastolic parameters as to ischemic group.

ACBG to infarction area showing incomplete redistribution on Tl-201 SPECT was effective. Early diastolic parameters on gated radionuclide imaging was useful to assess the effect of ACBG.

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CLINICAL TRIAL OF QUANTITATIVE ANALYSIS OF THE REGIONAL WALL MOTION BY PHASE ANALYSIS IN BLOOD-POOL EMISSION COMPUTED TOMOGRAPHY.

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The quantitative analysis of segmental wall motion by phase analysis applied to tomographic radionuclide ventriculography (Tomo RVG) was tried in this study.In the sagittal tomogram in the middle of left ventricle,the amplitude(AMP) and peak ejection rate(PER) in the anterior and inferior portions were respectively compared with % radial shortening value(%RS) in the same regions acquired from contrast left ventriculography(RAO 30 view).AMP and PER in the inferior wall and their I/A(inferior-anterior ratio) were significantly lower in the patients with infero-posterior infarction(N=11) than the normal subjects(N=9) and the patients with angina pectoris(N=16). In addition,the regional PER and I/A of PER had a good correlation ($p<0.01$) with the %RS in the same segments and I/A of %RS, respectively.This method enabled not only to detect abnormal wall motion but also to estimate the effect of aorto-coronary bypass grafting.In conclusion,application of phase analysis to Tomo RVG was suggested to enable to evaluate segmental wall motion three-dimentionally and quantitatively.